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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,940	08/21/2001	Kyung-Suk Yun	300602002100	5389

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EXAMINER

KALAFUT, STEPHEN J

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/27/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/932,940

Applicant(s)

YUN ET AL.

Examiner

Stephen J. Kalafut

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants disclose only one specific thickness, 2000 Å, for the present metal coating (page 8, line 19). Otherwise, the only recitation of thickness is “a few Å ~ a few μm”, which has indefinite scope, since no range is disclosed to define “a few”. Thus, applicants do not describe precisely what their invention is.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “a few Å ~ a few μm” in claims 1, 2 and 7 is a relative term which renders the claim indefinite. The term “a few” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Claims 3-6 depend from claim 2, and would also thus have indefinite scope. Claim 2 ends with the article “a”, but no noun afterwards. Claim 4 is confusing because silicon, a non-metal, and ferrite, a compound, are listed as metals. Claim 7 recites the electrode names in the reverse from the standard American terminology. The carbon should be an “anode”, and the other materials “cathodes”.

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugikawa (US 5,300,165).

Sugikawa discloses a porous carbon film (column 6, lines 42-44), onto which is deposited a metal such as Cu, Ni, Zn, Sn, Co, Al, Mo, Ti, Cr or Bs by vacuum evaporation (column 3, lines 54-60), in an appropriate vacuum chamber (column 14, lines 1-7). Since the carbon has pores ranging in size from 50 to 500  $\mu\text{m}$ , and since the resulting metal layer is porous, a metal coating thickness of “a few  $\mu\text{m}$ ” would be achieved, to the extent that this value is understood. The sheet of carbon and metal is later cooled (column 6, lines 59-61) and thus stabilized. Sputtering may also be used to deposit the metal (column 14, lines 60-61). Thus, to the extent that these claims are understood, they would be anticipated by Sugikawa.

Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoon *et al.* (US 6,391,497).

Yoon *et al.* disclose a battery anode comprising carbon particles coated with a porous nickel film (column 2, lines 25-28). Suitable cathodes for the battery include  $\text{LiCoO}_2$  and

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LiNiO<sub>2</sub> (column 4, lines 20-27). As seen in figure 2, the carbon particles, and thus their nickel film coatings, are a few  $\mu\text{m}$  in size. Thus, to the extent that these claims are understood, they would be anticipated by Yoon *et al.*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoon *et al.*

This claim differs from Yoon *et al.* by reciting LiMn<sub>2</sub>O<sub>4</sub>, V<sub>6</sub>O<sub>13</sub> and V<sub>2</sub>O<sub>5</sub> as “anode” materials, which would be called “cathode” materials in the normal American nomenclature. While these are not specifically mentioned by Yoon *et al.*, they fall within their teaching of “transition metal based oxides”, preferably of, among others, manganese and vanadium (column 4, lines 22-25). Yoon *et al.* teach these to be well known in the art (column 4, lines 20-22). It would thus be within the skill of the ordinary artisan to select an appropriate cathode material for the cell of Yoon *et al.* Accordingly, this claim would be obvious thereover.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Heffer (US 3,850,668), Penato (US 4,571,286) and Brotz (US 4,851,285) disclose methods of depositing metal onto carbon.

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The disclosure is objected to because of the following informalities: The reversal of the terms "anode" and "cathode" also occurs in the specification. On page 8, "polyvinyledeen" should be spelled "polyvinylidene". Appropriate correction is required.

Claim 3 is objected to because of the following informalities: The word "their of", at the end of this claim, should be "thereof". Appropriate correction is required.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is (703) 308-0433. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

sjk  
March 19, 2003

STEPHEN KALAFUT  
PRIMARY EXAMINER  
GROUP 1

1700  
